

**[0042]**      What is claimed is:

1.      A method for servicing generators by uniformly aligning optical stripes on a circumferential area of a generator's rotor shaft comprising:

         measuring said circumferential area with a measuring element, wherein said measuring element flexibly laps said circumferential area;

         indicating on said measuring element the measurement of said circumferential area;

         determining the circumference of said circumferential area from said measuring element;

         dividing the circumference into a plurality of equally spaced segments;

         marking on at least one marking strip said plurality of equally spaced segments;

         aligning said at least one marking strip on the circumference of said circumferential area;

         creating a pattern of stripes on said circumferential area corresponding to said plurality of equally spaced segments on said at least one marking strip; and

         scanning said un uniformly aligned optical stripes with an optical probe to detect torsional forces in said rotor shaft.

2.      The method of claim 1, wherein said at least one marking strip comprises two substantially identical marking strips.

3.      The method of claim 2, wherein said aligning of said at least one marking strip comprises aligning said two substantially identical marking strips a predetermined distance apart, then applying a plurality of cross strip across said plurality of equally spaced segments, such that the border created by said two

substantially identical marking strips and said plurality of cross strips defines the area in which said pattern of stripes are created.

4. The method of claim 1, wherein said stripes are produced by at least one of painting, polishing, etching and applying an adhesive material.

5. The method of claim 1, wherein said measuring element also functions as one of said marking strips.

6. The method of claim 1, wherein said stripes are parallel to the axis of said circumferential area.

7. The method of claim 1, wherein said stripes are at a uniform angle to the axis of said circumferential area.

8. The method of claim 7, wherein said uniform angle is 45 degrees.

9. The method of claim 1, wherein the number of segments are from 20-100.

10. The method of claim 1, wherein diameter of the circumferential area is from 0.1 m to 5.0 m.

11. The method of claim 1, wherein multiple patterned areas are created in close proximity to each other.

12. The method of claim 1, wherein a plurality of said pattern of stripes are created at varied locations on said circumferential area.

13. A method for servicing generators by uniformly aligning optical stripes on a circumferential area of a generator's rotor shaft comprising:

measuring said circumferential area with a measuring element, wherein said measuring element flexibly laps said circumferential area;

indicating on said measuring element the measurement of said circumferential area;

determining the circumference of said circumferential area from said measuring element;

dividing the circumference into a plurality of equally spaced segments;  
marking on said measuring element said plurality of equally spaced segments;  
copying said plurality of equally spaced segments to a second strip;  
aligning said measuring element and said second strip on the circumference of said circumferential area;  
placing a cross strip at each of said plurality of equally spaced segments to create equally spaced banding patterns on said circumferential area;  
painting said equally spaced banding patterns in a color that is optically distinguishable from the non-painted areas of said circumferential area; and  
scanning said un uniformly aligned optical stripes with an optical probe to detect torsional forces in said rotor shaft.

14. The method of claim 13, wherein the painting of said equally spaced banding patterns is performed after all of said cross strips are applied.

15. The method of claim 13, wherein said measuring element is a paper tape.

16. The method of claim 13, wherein said cross strips are half the width of said pattern segments.

17. The method of claim 13, wherein the number of segments are from 20-100.

18. The method of claim 13, wherein the diameter of rotating component wherein diameter of the circumferential area is from 0.1 m to 5.0 m.

19. The method of claim 13, wherein a plurality of said pattern of stripes are created at varied locations on said circumferential area.

20. A rotatable shaft retrofitted with a plurality of uniformly aligned optical stripes on a circumferential area of said shaft formed by:

measuring said circumferential area with a measuring element, wherein said measuring element flexibly laps said circumferential area;

indicating on said measuring element the measurement of said circumferential area;

determining the circumference of said circumferential area from said measuring element;

dividing the circumference into a plurality of equally spaced segments;

marking on said measuring element said plurality of equally spaced segments;

copying said plurality of equally spaced segments to a second strip;

aligning said measuring element and said second strip on the circumference of said circumferential area;

placing a cross strip at each of said plurality of equally spaced segments to create equally spaced banding patterns on said circumferential area; and

painting said equally spaced banding patterns in a color that is optically distinguishable from the non-painted areas of said circumferential area of said rotatable shaft.